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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,226	02/15/2002	In-De Ou	BHT-3183-39	7867

7590

06/11/2003

BRUCE H. TROXELL  
SUITE 1404  
5205 LEESBURG PIKE  
FAALS CHURCH, VA 22041

EXAMINER

NGO, HUNG V

ART UNIT

PAPER NUMBER

2831

DATE MAILED: 06/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
10/075,226

Applicant(s)  
Ou et al

Examiner  
Hung V. Ngo

Art Unit  
2831



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Apr 21, 2003
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 17-27 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 17-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marcinkiewicz et al in view of Juskey et al.

Marcinkiewicz et al disclose a die (24) having plurality of bonding pads (22), a carrier (10) having a cavity (11) covering a passive surface and sides of the die (fig 4)(re claim 27), a plurality of dielectric layers or three layers (18)(re claim 18) having a plurality of conductive columns (19) electrically connected to the bonding pads of the die, a plurality of traces (20).

Re claim 19, wherein the die is positioned within the cavity and the active surface of the die is coplanar with the top surface of the metal carrier (Fig 4).

Re claim 20, see Fig 4.

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The teaching of Marcinkiewicz et al as discussed above does not disclose the carrier made of metal or aluminum (re claim 17, 25), a plurality of pads formed a grid array (re claims 21, 23), a plurality of connectors such as solder bumps (re claim 22), the dielectric material made of polyimide, epoxy (re claim 24), the conductive column made of aluminum, aluminum alloy, copper, copper alloy (re claim 26).

Re claim 17, 25, Juskey et al disclose a carrier (20) made of metal such as aluminum (col 4, lines 13-15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use aluminum for the carrier of Marcinkiewicz et al for the purpose of enhancing heat dissipation.

Re claims 21-23, Juskey et al disclose a plurality of pads (24) formed a grid array (Fig 4), a plurality of connectors such as solder bumps (23). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the plurality of pads and solder bumps with the device of Marcinkiewicz et al for the purpose of electrically connecting to other devices such as a circuit board.

Re claim 24, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use polyimide, epoxy for the dielectric layers of Marcinkiewicz et al, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

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Re claim 26, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use aluminum, aluminum alloy for the conductive columns of Marcinkiewicz et al, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

***Response to Arguments***

Applicant's arguments with respect to claim 17-27 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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***Communication***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung V. Ngo whose telephone number is (703) 308-7614. The examiner can normally be reached on Monday to Friday from 9:30 am to 06:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard, can be reached on (703) 308-3682.

The fax phone number for this Group is (703) 872-9318 (Before Final) or (703) 872-9319 (After Final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Hung V. Ngo

June 5, 2003



**HUNG V. NGO  
PRIMARY EXAMINER**